AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph of the specification that appears at page 1, lines 3-8, as follows:

This invention relates to a method to reduce formation of a coke material on a Transfer Line Exchanger (TLE exchanger) tubesheet by injecting steam ~~in~~ into a hydrocarbon effluent from a hydrocarbon cracking furnace. This invention particularly relates to an apparatus for injecting steam into a hydrocarbon effluent from a hydrocarbon cracking furnace to reduce the coke material from forming on a TLE exchanger tubesheet at the outlet of the hydrocarbon cracking furnace.

Please amend the paragraph of the specification that appears at page 3, line 22 to page 4, line 7, as follows:

The production of ethylene is accomplished by subjecting a hydrocarbon feed **46** to severe temperature in a hydrocarbon cracking furnace **44**. The temperature ranges from about 1500°F to about 1700°F. A hydrocarbon effluent **48** exits the hydrocarbon cracking furnace **44** at this severe temperature, and it then is quenched to a temperature below ~~1000 F~~ 1000°F through the use of a TLE exchanger **43**. A coke material can be formed in the TLE cone **42** when the hydrocarbon effluent **48** is entering the TLE exchanger **43**. The coke material also can form on the TLE exchanger tubesheet **6**. This formation of coke material can eventually plug the TLE exchanger **43** requiring the hydrocarbon cracking ~~furnace 44~~ furnace **44** to shut down for maintenance.

Please amend the paragraph of the specification that appears at page 4, lines 8-13, as follows:

The coke material is formed more rapidly in low flow areas ~~**7 and 9**~~ 7 and **9**. Low flow areas **7** and **9** are found on the outer edge of the TLE cone **42**. The higher flow area is in the center of the TLE cone **14** and the center of the hydrocarbon effluent **10**. Injecting steam into the low flow areas **7** and **9** can decrease the resonance time that the hydrocarbon effluent takes to flow through the TLE cone **42**. The steam injection also quenches the hydrocarbon effluent. The result is less coke material formed on the TLE tubesheet **6**.

Please amend the paragraph of the specification that appears at page 4, line 14 to page 5, line 8, as follows:

The apparatus comprises at least one injection probe **35** and at least one distribution nozzle **32**. The injection probe **35** is connected to the TLE cone **42** making an ~~**angle 32**~~ angle **38** in a range of about 30 degrees to about 60 degrees as it protrudes through the refractory lining of the TLE cone **11** in Fig. 2 and **18** in Fig. 3. Preferably, the ~~**angle 32**~~ angle **38** is 45 degrees. Preferably, the injection probe **35** is located at a distance **16** from the TLE tubesheet **6** in a range of about 12 inches to about 36 inches, most preferably, 12 inches to 24 inches. A distribution nozzle **32** is connected to the end of the injection probe **34** to distribute the steam flow. The injection probe **35** and distribution nozzle **32** protrude into the TLE cone **42** by about 1% to about ~~**10% of the radius of the TLE cone 15**~~ 10% of the radius **15** of the TLE cone **42**.

Preferably, the injection probe **35** and distribution nozzle **32** protrude about 1% to about ~~3% of the radius of the TLE cone 42~~ 3% of the radius **15** of the TLE cone **42**. In addition, the location of the injection probe **35** and distribution nozzle **32** can prevent erosion of the distribution nozzle **32** due to the low velocity of the hydrocarbon effluent. The hydrocarbon effluent **48** flow rate is increased by injecting steam in the low velocity areas **7** and **9** of the TLE ~~cone 42~~ cone **42** downstream of the injection probe **35**, which ultimately reduces the formation of the coke material on the TLE exchanger tubesheet **6**. The distribution nozzle **32** injects steam in the direction of the hydrocarbon effluent **48** flow. Preferably, there are six injection probes **20**, **22**, **24**, **26**, **28** and **30** at an angle of about 60 degrees apart around the circumference of the TLE cone **42**.